

NEW ZEALAND DATA SHEET

SANDOMIGRAN[®]

Pizotifen

0.5 mg Coated Tablets

Description and composition

Active Substance

The active ingredient is 4-(1-methyl-4-piperidylidene)-9,10-dihydro-4H-benzo-[4,5]cyclohepta[1,2-b] thiophene hydrogen malate (= pizotifen hydrogen malate). One coated tablet contains 0.73 mg pizotifen hydrogen malate (corresponding to 0.50 mg pizotifen base).

Excipients

Tablet core: magnesium stearate; talc; povidone; maize starch; lactose, monohydrate. Coating: titanium dioxide (E171); silica, colloidal anhydrous; acacia; talc, sucrose, cetyl palmitate.

Pharmaceutical form

Tablets for oral administration.

Clinical particulars

Indications

Prophylactic treatment of recurrent vascular headaches, such as

- typical or atypical migraine
- vasomotor headache
- cluster headache (Horton's syndrome).

Sandomigran is less effective in tension headache and in psychogenic and post-traumatic headaches. It is not effective in relieving migraine attacks once in progress.

Dosage and administration

General target population. Starting with 0.5 mg daily, the dosage should be progressively increased. The average maintenance dosage is 1.5 mg daily in divided doses or as a single dose at night. In refractory cases the physician may gradually raise the dosage to 3 to 4.5 mg daily taken in 3 divided doses.

Paediatrics (children from 2 years of age and adolescents)

Starting with 0.5 mg, the daily dose may be increased up to 1.5 mg in divided doses, or 1 mg may be given as a single dose at night.

Children below two years of age should not be given Sandomigran.

Special populations

Renal and hepatic impairment

Caution is required in patients with renal or hepatic impairment and dosage adjustment may be necessary (see **Clinical pharmacology**)

Contraindications

Known hypersensitivity to pizotifen or to any of the excipients (see **Excipients**).

Sandomigran should not be given to children under 2 years of age.

Warnings and precautions

Hepatic injury has been reported, ranging from transaminase elevations to severe hepatitis. Pizotifen treatment should be discontinued if there is any clinical evidence of hepatic dysfunction during treatment and until the cause of the liver abnormality is determined.

In view of the slight anticholinergic effect of pizotifen, caution is required in patients with narrow-angle glaucoma (except those successfully treated by surgery) or urinary retention (e.g. in prostatic enlargement).

Seizures as adverse effects have been observed more frequently in patients with epilepsy. Pizotifen should be used with caution in patients with epilepsy.

Withdrawal symptoms like depression, tremor, nausea, anxiety, malaise, dizziness, sleep disorder and weight decreased have been reported following abrupt cessation of pizotifen (see **Adverse drug reactions**), therefore gradual withdrawal is recommended.

Sandomigran coated tablets contain lactose. Patients with rare hereditary problems of galactose intolerance, severe lactase deficiency or glucose-galactose malabsorption should not take Sandomigran.

Interactions

The following drugs may exhibit drug interactions with pizotifen upon concomitant administration.

Anticipated drug interactions to be considered

Pizotifen is extensively metabolized in the liver, primarily by N-glucuronidation. Increased plasma concentration of pizotifen upon concomitant administration of drugs which exclusively undergo glucuronidation can not be excluded.

Cisapride

Concomitant administration of pizotifen with cisapride may lead to reduced efficacy of cisapride.

Central nervous system agents

Central effects of sedatives, hypnotics, antihistamines (including certain common cold preparations), and alcohol may be enhanced.

Pregnancy and breast-feeding

Pregnancy

As clinical data for pizotifen in pregnancy are very limited, Sandomigran should be administered in pregnancy only in compelling circumstances.

Breast-feeding

Although the concentrations of pizotifen measured in the milk of treated mothers are not likely to affect the infant, the use of Sandomigran in nursing mothers is not recommended.

Effects on ability to drive and use machines

Pizotifen may cause sedation, somnolence and dizziness. Therefore, caution should be exercised when driving or using machines.

Patients being treated with Sandomigran and presenting with sedation and/or somnolence episodes must be instructed to refrain from driving or engaging in activities where impaired alertness may put themselves or others at risk.

Adverse drug reactions

The most common side effects are appetite stimulating effect, increase in body weight and sedation (including somnolence and fatigue).

Adverse reactions are ranked under headings of frequency, the most frequent first, using the following convention: Very common ($\geq 1/10$); common ($\geq 1/100$, $< 1/10$); uncommon ($\geq 1/1000$, $< 1/100$); rare ($\geq 1/10,000$, $< 1/1000$); very rare ($< 1/10,000$), including isolated reports.

Table 1

Immune system disorders	
Rare:	Hypersensitivity reactions, face oedema
Metabolism and nutrition disorders	
Very common:	Increased appetite and body weight increased
Psychiatric disorders	
Rare:	Depression, CNS stimulation (e.g. aggression, agitation), hallucination, insomnia, anxiety
Nervous system disorders	

Common:	Sedation (including somnolence), dizziness
Rare:	Paraesthesia
Very rare:	Seizures
Gastrointestinal disorders	
Common:	Nausea, dry mouth
Uncommon:	Constipation
Skin and subcutaneous tissue disorders	
Rare:	Urticaria, rash
Musculoskeletal and connective tissue disorders	
Rare:	Myalgia
General disorders and administration site conditions	
Common	Fatigue

Adverse drug reactions from post-marketing spontaneous reports

The following additional adverse drug reactions have been identified with pizotifen based on post-marketing spontaneous reports. Because these reactions are reported voluntarily from a population of uncertain size, it is not always possible to reliably estimate their frequency.

Hepatobiliary disorders

Unknown: Hepatic enzyme increased, jaundice, hepatitis

Musculoskeletal and connective tissue disorders

Unknown: Muscle cramps.

Withdrawal symptoms:

Withdrawal reactions have been reported following abrupt cessation of pizotifen, therefore gradual withdrawal is recommended (see **Warnings and precautions**). Withdrawal symptoms may include: depression, tremor, nausea, anxiety, malaise, dizziness, sleep disorder and weight decreased.

Overdose

Symptoms: drowsiness, nausea, dry mouth, tachycardia, pyrexia, hypotension, dizziness, excitatory states (in children), respiratory depression, convulsion (particularly in children), coma.

Treatment: Administration of activated charcoal is recommended; in case of very recent intake, gastric lavage may be considered. If necessary, symptomatic treatment should be given including monitoring of the cardiovascular and respiratory symptoms. For excitatory states or convulsions, benzodiazepines may be used.

Clinical Pharmacology

Pharmacodynamics

Pharmacotherapeutic group: antimigraine drug, ATC code: N02C X01

Mechanism of action

Pizotifen is characterized by its polyvalent inhibitory effect on biogenic amines, such as serotonin, histamine and tryptamine. It is suitable for the prophylactic treatment of migraine, reducing the frequency of attacks.

Pizotifen also possesses appetite-stimulating properties.

Pharmacokinetics

Absorption

Following oral administration, the drug is rapidly and almost completely absorbed from the gastrointestinal tract. The mean absolute bioavailability after oral administration was about 80 %. Following a single 2-mg oral administration of pizotifen, the mean maximum plasma concentration (C_{max}) of pizotifen and its metabolite measured together were about 5 ng/mL (T_{max}: 5.5 hr). Following repeated administration of 1mg three times a day for six days, the mean maximum plasma concentration at steady state was observed at 4 hr post dose (C_{max,ss}: 14 ng/mL) and the mean trough plasma concentration was about 11 ng/mL (C_{min,ss}).

Distribution

Pizotifen is extensively and rapidly distributed throughout the body with mean distribution volume of 833 L and 70 L for the parent drug and its metabolite N-glucuronide, respectively. Approximately, 91 % of the drug is bound to plasma proteins. The distribution and elimination kinetics have generally been described as a bi-exponential decay function using two-compartment model.

Metabolism

Pizotifen is metabolized in the liver, primarily by glucuronidation. The main metabolite is the N-glucuronide-conjugate, and accounts for at least 50 % of the plasma exposure.

Elimination

About one-third of an orally administered dose is excreted via the biliary route. A significant proportion of the parent drug, corresponding to about 18 % of the administered dose, is found in the faeces. The remaining fraction of the administered dose (about 55 %) is primarily eliminated in the form of metabolites in the urine. Less than 1 % of the administered dose of pizotifen is excreted unchanged through the kidneys, whereas 55 % is excreted as metabolites. Pizotifen and its major metabolite, N-glucuronide conjugate, is eliminated with a half-life of approximately 23 hours.

Special populations

Renal impairment

No specific pharmacokinetic studies were conducted in patients with renal impairment. Although pizotifen is primarily eliminated in the form of metabolites in the urine, the possibility of accumulation of inactive metabolites subsequently leading to the accumulation of the parent drug can not be ruled out. Caution is required in patients with renal impairment and dosage adjustment may be necessary.

Hepatic impairment

Although no specific pharmacokinetic studies were conducted in patients with hepatic impairment, pizotifen is extensively metabolized in liver and primarily eliminated in the form of glucuronides in the urine. Caution is required in patients with hepatic impairment and dosage adjustment may be necessary.

Clinical studies

Sandomigran is an established product. There are no recent clinical data regarding the approved indications for Sandomigran.

Non-clinical safety data

Repeat-dose toxicity

Repeat-dose toxicity studies were performed in rats and dogs of up to 2 years duration. Target organs, based on histopathological findings, were liver, kidney and possibly thyroid in rats and liver, thyroid and spleen in dogs. The no-observed-effect level (NOEL) in both rats and dogs was 3 mg/kg which is over 30-fold greater than the maximum recommended human daily dose

Reproductive toxicity

Pizotifen hydrogen malate was evaluated in multiple reproductive and developmental toxicity studies for its effects on fertility and its embryotoxic, fetotoxic, teratogenic and developmental toxic potential. There were no specific reproductive or developmental effects observed in mice, rats or rabbits up to the highest tested doses of 30 mg/kg. This dose level is greater than 300 times the daily maximum recommended adult human dose of 0.09 mg/kg.

Mutagenicity

In vitro and *in vivo* mutagenicity tests were performed and did not reveal any mutagenic activity of pizotifen hydrogen malate.

Carcinogenicity

A 2-year rat toxicity study did not reveal any gross lesions or masses attributable to pizotifen hydrogen malate administration at dose levels of up to 27 mg/kg which is 300 fold greater than the maximum recommended human daily dose on a mg/kg basis.

Pharmaceutical information

Incompatibilities

Not applicable.

Shelf life

3 years.

Special precautions for storage

Store at or below 30°C. Protect from light

Sandomigran must be kept out of the reach and sight of children.

Nature and contents of container

Sandomigran coated tablets are available in PVC/PVDC blister packs containing 100 tablets

Instructions for use and handling

Not applicable.

Medicine classification

Prescription Medicine

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Date of preparation

4 May 2011